

CLAIMS

What is claimed is:

1. Seroreactive regions on the E1 protein of human papillomavirus (HPV) 16, with the following amino-acid sequences:

- I. NGWFYVEAVVEXKTGDAISDDENENDSDTGEDLVDFIVNDNDYLT
- II. NENDSDTGEDLVDFIVND
- III. NADPAGTNGEEGTGCNGWFYVEAVVEKKTGDAISDPENENDSDTGED
LVDFIVNDNDYLT
- IV. EDLVDFIVNDNDYLT
- V. EDLVDFIVNDNDYLTQAETETAHALFTAQEKQH
- VI. NENDSDTGEDLVDFIVNDNDYLTQAETETAHALFTAQEAXQHRDAVQVL
KRKYI
- VII. GSPLSDIS.

2. Seroreactive regions on the E2 protein of human papillomavirus (HPV) 16, with the following amino-acid sequences:

- I. DKILTHYENDS
- II. DKILTHYENDSTDLRDHI
- III. DLRDHIDYWKH
- IV. AIYYKAREMGFKHINHQVVPTLA
- V. AIYYKAREMGFKHINHQVVPTLAVSKNKAL
- VI. YYKAREMGFKHINHQVVPTLAVSKN
- VII. INHQVVPTLAVSKNKALQAI
- VIII. INHQVVPTLAVSKNKAL
- IX. TLAVSKNKALQAIELQLTLETIYNSQYSNEKWTLQDV
- X. QLTLETIYNSQYSNEKWTLQDV
- XI. TLETIYNSQYSNEK

XII. TSVFSSNEVSSPEII

XIII. VFSSNEVSSPEIIRQHLANHPAATHTKAVALGTEET

XIV. EIIRQHLANHPAATHTKAVALGTEETQTTIQRPRSEP

3. A peptide which contains one or more of the seroreactive regions as claimed in claim 1.

4. A peptide which contains one or more of the seroreactive regions as claimed in claim 2.

5. A vaccine which contains one or more of the peptides as claimed in claim 3.

6. A vaccine which contains one or more of the peptides as claimed in claim 4.

7. A composition for diagnostic purposes for identifying specific antibodies against HPV 16 E1 or E2 protein, which contains peptides as claimed in claim 3.

8. A composition for diagnostic purposes for identifying specific antibodies against HPV 16 E1 or E2 protein, which contains peptides as claimed in claim 4.

9. A monoclonal antibody which has affinity for the seroreactive regions of claim 1.

10. A monoclonal antibody which has affinity for the seroreactive regions of claim 2.

11. A composition for diagnostic purposes, which contains a monoclonal antibody as claimed in claim 9.

12. A composition for diagnostic purposes, which contains a monoclonal antibody as claimed in claim 10.

13. A composition for diagnostic purposes as claimed in claim 11 for identifying HPV 16 specific E1 or E2 proteins.

14. A composition for diagnostic purposes as claimed in claim 12 for identifying HPV 16 specific E1 or E2 proteins.

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15. The use of peptides as claimed in claim 3 for producing vaccine or for compositions for diagnostic purposes.
16. The use of peptides as claimed in claim 4 for producing vaccine or for compositions for diagnostic purposes.
17. An antibody that binds to an amino acid sequence present in SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, or SEQ ID NO:22.
18. The antibody of claim 17, wherein the antibody detects or identifies the E1 or E2 protein of human papilloma virus 16 (HPV 16).
19. The antibody of claim 17, which is a monoclonal antibody.
20. The antibody of claim 17, which is a polyclonal antibody.
21. Polyclonal antisera comprising the antibody of claim 17.
22. A composition comprising the antibody of claim 17.
23. The composition of claim 22, which is a diagnostic composition.

24. The composition of claim 22, wherein the composition is used for identifying, diagnosing, or detecting HPV 16 infection.

25. A method of identifying, diagnosing, or detecting HPV 16 infection, said method comprising
contacting a sample from a human suspected of being infected with HPV 16 with an antibody that binds to an amino acid sequence present in SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, or SEQ ID NO:22, and
detecting binding of said antibody to said amino acid sequence,
wherein binding indicates an HPV 16 infection.

26. The method of claim 25, wherein said detecting is by enzyme linked immunosorbent assay (ELISA).

27. The method of claim 25, wherein said method detects binding of said antibody with the E1a, E1b, or E2 protein of HPV 16.